AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF PAGES
	1	

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0001	8/18/03		

6. ISSUED BY CODE

US Army Corps of Engineers, Philadelphia
Wanamaker Building, 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390

7. ADMINISTERED BY *(If other than Item 6)* CODE

Michelle Bertoline, 215-656-6914

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State and ZIP Code)*

CODE FACILITY CODE

(√) X

9A. AMENDMENT OF SOLICITATION NO.
DACW61-03-B-0013

9B. DATED *(SEE ITEM 11)*
7/24/03

10A. MODIFICATION OF CONTRACTS/ORDER NO.

10B. DATED *(SEE ITEM 13)*

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

DELAWARE BAY COASTLINE, DELAWARE & NEW JERSEY, ROOSEVELT INLET, LEWES BEACH, DELAWARE

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)* SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor ☐ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

THIS AMENDMENT EXTENDS THE BID OPENING DATE TO 28 AUGUST 2003 AT 11:00 A.M.

(CONTINUED ON NEXT PAGE)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
15B. CONTRACTOR/OFFEROR _____ *(Signature of person authorized to sign)*	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ *(Signature of Contracting Officer)*	16C. DATE SIGNED

14. DESCRIPTION OF AMENDMENT (continued)

a. SF 1442 AND BIDDING SCHEDULE: Please delete the SF1442 and the Bid Schedule (page 00010-3) in their entirety and substitute the revised pages, annotated Amendment No. 0001, attached hereto.

b. TECHNICAL SPECIFICATIONS:

(1) Section 01450 CONTRACTOR QUALITY CONTROL (CQC), Paragraph 3.4.2: Please change the 3rd to last sentence to read: "The CQC System Manager shall be assigned no other ***duties***."

(2) Section 01780 AS-BUILT DRAWINGS: Please delete this section in its entirety and substitute the revised section, annotated Amendment No. 0001, attached hereto.

(3) Section 02215 GEOTEXTILE: Please delete this section in its entirety and substitute the revised section, annotated Amendment No. 0001, attached hereto.

(4) Section 02225 JETTY RECONSTRUCTION: Please delete this section in its entirety and substitute the revised section, annotated Amendment No. 0001, attached hereto.

(5) Section 02390 – BEACHFILL, Subparagraph 3.4.2 Beachfill: In the last sentence, please change the Bid Item No. from "2" to "3."

(6) Section 02446 – SAND FENCE AND DUNE GRASS, Page 4: Please delete paragraph 3.3 entitled "MEASUREMENT AND PAYMENT" in its entirety and substitute the following:

> "3.3 MEASUREMENT AND PAYMENT
>
> The work specified in this section for the planting of dune grass and the installation of sand fence will not be measured for payment. All costs in connection with these work items shall be included in the contract lump sum prices for Bid Items No. 11 and 12, "Dune Grass" and "Sand Fence," respectively."

(7) Section 02451 CROSSOVERS: Please delete this section in its entirety and substitute the revised section, annotated Amendment No. 0001, attached hereto.

(8) Sections 03300 and 05500: Please delete these sections in their entirety.

c. CONTRACT DRAWINGS:

(1) Drawing Nos. 61843, 61846, 61847, 61848, 61849, 61850, and 61852 – Please delete these drawings in their entirety and substitute the revised sheets, of the same Drawing Numbers, with a revision date of 15 Aug 2003, attached hereto.

(2) Drawing No. 61844; Please make the pen and ink change to "Typical Pedestrian Crossover Plan" detail. Change the misspelled word "YATCH" to the correct spelling "YACHT".

d. Please indicate receipt of this amendment on Standard Form 1442(SOLICITATION, OFFER, AND AWARD) as Amendment No. 0001. Failure to acknowledge all amendments may be cause for rejection of the bid.

Amendment No. 0001

SOLICITATION, OFFER, AND AWARD *(Construction, Alteration, or Repair)*	1. SOLICITATION NO.	2. TYPE OF SOLICITATION	3. DATE ISSUED	PAGE OF PAGES
	DACW61-03-B-0013	☒ SEALED BID *(IFB)* ☐ NEGOTIATED *(RFP)*	7/24/03	1

IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO.	6. PROJECT NO.

7. ISSUED BY CODE	8. ADDRESS OFFER TO
US ARMY ENGINEER DISTRICT, PHILADELPHIA CONTRACTING DIVISION WANAMAKER BUILDING, 100 PENN SQUARE EAST PHILADELPHIA, PENNSYLVANIA 19107-3390	

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. *(Include area code) (NO COLLECT CALLS)*
▶	MICHELLE BERTOLINE	215-656-6914

SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS *(Title, identifying no., date):*

SOLICITATION NUMBER: DACW61-03-B-0013

PROJECT TITLE: Delaware Bay Coastline, Delaware & New Jersey, Roosevelt Inlet, Lewes Beach, Delaware

ISSUE DATE: July 24, 2003

BID OPENING DATE: August 28, 2003 AT 11:00 A.M.**

THIS PROCUREMENT IS 100% SET ASIDE FOR SMALL BUSINESSES

SEE THE "INVITATION TO BIDDERS" PAGE FOR INFORMATION ON A SITE VISIT.

11. The Contractor shall begin performance within SC-1 calendar days and complete it within SC-1 calendar days after receiving ☐ award, ☒ notice to proceed. This performance period is ☒ mandatory, ☐ negotiable. *(See _____.)*

12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how may calendar days after award in Item 12B.)*	12B. CALENDAR DAYS
☒ YES ☐ NO	10

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 1 copies to perform the work required are due at the place specified in Item 8 by 11:00 a.m. *(hour)* local time 8/28/03 *(date).* If this is a sealed bid solicitation, offers will be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee ☒ is, ☐ is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

OFFER *(Must be fully completed by offeror)*

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*	15. TELEPHONE NO. *(Include area code)*
	16. REMITTANCE ADDRESS *(Include only if different than Item 14)*
CODE FACILITY CODE	

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.*

AMOUNTS ▶

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS
(The offeror acknowledges receipt of amendments to the solicitation - give number and date of each)

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)*	20B. SIGNATURE	20C. OFFER DATE

AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA

24. SUBMIT INVOICES TO ADDRESS SHOWN IN ▶ *(4 Copies unless otherwise specified)*	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C 2304(c) ( ) ☐ 41 U.S.C 253(c) ( )
26. ADMINISTERED BY CODE		27. PAYMENT WILL BE MADE BY

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

☐ 28. NEGOTIATED AGREEMENT *Contractor is required to sign this document and return _____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.

☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*		31A. NAME OF CONTRACTING OFFICER *(Type or print)*	
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE

BIDDING SCHEDULE
(To be attached to SF 1442)

Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
1. Mobilization and Demobilization of Plant and Equipment Required for Beachfill	***1***	***JOB***	***LS***	***$***
2. Mobilization and Demobilization of Plant and Equipment Required for Jetty Reconstruction	***1***	***JOB***	***LS***	***$***
3. Beachfill	180,745	CY	$	$
4. Excavation/Backfill	***7,375***	***CY***	***$***	***$***
5. Removal of Existing Revetment Stone	***420***	***CY***	***$***	***$***
6. Jetty Stone	***18,220***	***TON***	***$***	***$***
7. Bedding Stone	***3,055***	***TON***	***$***	***$***
8. Concrete Infill	***145***	***CY***	***$***	***$***
9. ***Dune*** Crossovers	3	EA	$	$
10. As-Built Drawings	1	JOB	LS	$
11. Dune Grass	***1***	***JOB***	***LS***	***$***
12. Sand Fence	***1***	***JOB***	***LS***	***$***

TOTAL ESTIMATED AMOUNT: $

SECTION 01780

AS-BUILT DRAWINGS

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work specified in this section includes the preparation of as-built drawings complete, as a requirement of this contract.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Progress Prints; G,COR.

The Contractor shall submit as-built marked prints with submission of each monthly pay estimate.

SD-11 Closeout Submittals

As-Built Drawings; G,COR.

The Contractor shall submit as-built drawings as specified herein.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 PROGRESS MARKED-UP AS-BUILT PRINTS

The Contractor shall mark-up one set of paper prints to show the as-built conditions for the project. These as-built marked prints shall be kept current and available on the jobsite at all times. All changes from the contract plans which are made in the work or additional information which might be uncovered in the course of construction shall be accurately and neatly recorded as they occur by means of details and notes. The as-built marked prints will be jointly inspected for accuracy and completeness by the Contracting Officer's representative and a responsible representative of the Construction Contractor prior to submission of each monthly pay estimate. The drawings shall show the following information, but not be limited thereto:

a. The location and description of any utility lines or other installations of any kind or description known to exist within the construction area. The location shall include dimensions to permanent features.

b. The location and dimensions of any changes within the structure.

c. Correct grade or alignment of roads, structures, or utilities if any changes were made from the contract plans.

d. Correct elevation if changes were made in site grading.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the Contractor including but not limited to fabrication, erection, installation plans and placing details, ***pipe sizes, etc.***

f. The topography and grades of all drainage installed or affected as part of the project construction.

g. All changes or modifications which result from the final inspection.

3.2 PRELIMINARY SUBMITTALS

The Contractor shall prepare the progress as-built prints and these shall be delivered to the Contracting Officer at the time of final inspection for his review and approval. These as-built marked prints shall be neat, legible and accurate. The review by Government personnel will be expedited to the maximum extent possible. Upon approval, the as-built marked prints will be returned to the Contractor for use in preparation of final as-built drawings. If upon review, the drawings are found to contain errors and/or omissions, they will be returned to the Contractor for corrections. The Contractor shall complete the corrections and return the as-built marked prints to the Contracting Officer within ten (10) calendar days.

3.3 DRAWING PREPARATION

3.3.1 General Requirements

Upon approval of the as-built prints submitted, the Contractor will be furnished the contract drawings on 3-1/2 inch floppy disks or compact disc (CD) in AutoCAD 2000 format with all amendments incorporated. The drawing files shall be modified as necessary to correctly show all the features of the project as it has been constructed by bringing the contract set into agreement with the approved as-built prints, adding such additional drawings as may be necessary.

3.3.2 Modification of Contract Drawings

Only personnel proficient in the preparation of engineering drawings and the use of AutoCAD 2000, to standards satisfactory and acceptable to the Contracting Officer, shall be employed to modify the contract drawings or prepare additional new drawings. All additions and corrections to the contract drawings shall be done using AutoCAD 2000 in a professional manner, and shall match the existing linework and/or lettering used on the drawings in type, density, size and style. The title block to be used for any new as-built drawings shall be the same as that used on the original drawings.

3.3.3 Identification of Final As-Built Drawings

When final revisions have been completed, each drawing shall be identified with the words "RECORD DRAWING AS-BUILT" followed by the name of the General Contractor in letters at least 3/16-inch high. All contract drawings shall be annotated and dated in the revision block as either "AS-BUILT DRAWING" denoting no revision on the sheet or "REVISED AS-BUILT

DRAWING" denoting one or more revisions. For drawings having as-built revisions, a revision number contained within a 3/16 inch high triangle shall be included in the revision block. All changes to drawings shall be encircled with a series of short arcs forming a "cloud", with the triangle revision number positioned immediately next to each cloud.

3.4 FINAL REQUIREMENTS

After receipt by the Contractor of the approved as-built prints and the original contract drawings, the Contractor shall within 30 days for contracts less than $5 million or within 60 days for contracts of $5 million or more, make the final as-built submittal. This submittal shall consist of the completed as-built drawings on 3-1/2 inch floppy disk or compact disk (CD) in AutoCAD 2000 format, one full-size mylar copy of the drawings, and the return of the approved as-built prints. All drawings shall be complete in all details. All AutoCAD files and reproducible drawings will become the property of the Government upon final approval. Failure to submit the above as-built information as required will be cause for withholding any payment due the Contractor under this contract. The Contracting Officer will review all as-built drawings for accuracy and conformance to the above requirements. The Contractor shall make all corrections, changes, additions, and deletions required to meet these standards. Approval and acceptance of final as-built drawings will be required before final payment is made to the Contractor.

3.5 MEASUREMENT AND PAYMENT

The work specified in this section for the preparation of the as-built drawings will not be measured for payment. All costs in connection therewith shall be included in the contract lump sum price for Bid Item No. 10 "As-Built Drawings."

-- End of Section --

SECTION 02215

GEOTEXTILE

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work covered by this section consists of furnishing all labor, material and equipment, and performing all operations required for furnishing, hauling, and installing geotextile.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 123	(1996a) Standard Terminology Relating to Textiles
ASTM D 3786	(1987) Hydraulic Bursting Strength of Knitted Goods and Nonwoven Fabrics - Diaphragm Bursting Strength Tester Method
ASTM D 4355	(1999) Deterioration of Geotextiles from Exposure to Ultraviolet Light and Water (Xenon-Arc Type Apparatus)
ASTM D 4491	(1999a) Water Permeability of Geotextiles by Permittivity
ASTM D 4533	(1991; R 1996) Trapezoid Tearing Strength of Geotextiles
ASTM D 4632	(1991; R 1997) Grab Breaking Load and Elongation of Geotextiles
ASTM D 4751	(1999a) Determining Apparent Opening Size of a Geotextile
ASTM D 4833	(2000) Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products
ASTM D 4873	(2001) Identification, Storage, and Handling of Geosynthetic Rolls and Samples

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Samples

Geotextile; G,DO.

If requested by the Contracting Officer, the Contractor shall provide to the Government geotextile samples for testing to determine compliance with any or all the requirements in this specification. Samples shall be submitted within 5 days of the request. All samples provided shall be from the same production lot as will be supplied for the contract, and shall be the full manufactured width by at least 1 foot. Samples submitted for testing shall be identified by manufacturers lot designation.

SD-07 Certificates

Geotextile; G,DO.

The Contractor shall furnish the Contracting Officer no less than 7 days in advance of delivery of material to the work site, in duplicate, a mill certificate or affidavit signed by a legally authorized official from the company manufacturing the geotextile. The mill certificate or affidavit shall attest that the geotextile meets the chemical, physical and manufacturing requirements stated in these specifications.

Work Plan for Placement of Geotextile ***Under Bedding***; G,DO.

Details of the Contractor's proposed plan for placement of geotextile, shall be submitted for approval by the Contracting Officer at least 14 days prior to the commencement of work specified in this section.

1.4 SHIPMENT, HANDLING, AND STORAGE

1.4.1 Shipment

All geotextile shall be labeled, shipped, stored, and handled in accordance with ASTM D 4873 and as specified herein. Each roll shall be wrapped in an opaque and waterproof layer of plastic during shipment and storage. The plastic wrapping shall be placed around the geotextile roll in the manufacturing facility and shall not be removed until deployment. Each roll shall be labeled with the manufacturer's name, geotextile type, lot number, roll number, and roll dimensions (length, width, gross weight). At the time of installation, the geotextile will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage. Damaged geotextile shall be repaired or replaced at no additional cost to the Government.

1.4.2 Handling

No hooks, tongs, or other sharp instruments shall be used for handling geotextile. Geotextile shall not be dragged along the ground. Any geotextile determined to be damaged as a result of poor handling shall be removed from the site and replaced, at no additional cost to the Government, by additional geotextile meeting the requirements of this specification.

1.4.3 Storage

During all periods of shipment and storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures in excess 140 degrees F or less if recommended by the manufacturer, mud, dirt, dust and debris. Geotextiles shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect the properties or performance of the geotextile.

PART 2 PRODUCTS

2.1 GEOTEXTILE ***FOR JETTY CONSTRUCTION***

The geotextile shall be a non-woven pervious sheet of plastic yarn as defined by ASTM D 123. Fibers used in the manufacture of the geotextile shall consist of long-chain synthetic polymer composed of at least 85 percent by weight of polyolefins, polyesters, or polamides. Stabilizers and/or inhibitors shall be added to the base polymer if necessary to make the filaments resistant to deterioration caused by ultraviolet light and heat exposure. Reclaimed or recycled fibers or polymer shall not be added to the formulation. Geotextile shall be formed into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. The edges of the geotextile shall be finished to prevent the outer fiber from pulling away from the geotextile. The geotextile shall be manufactured in a width not less than 12 feet and shall meet the physical requirements shown on the following page:

PHYSICAL REQUIREMENTS

PROPERTY	***TEST METHOD***	***ACCEPTABLE TEST RESULTS***
Apparent Opening Size (AOS)	***ASTM D 4751***	***U.S. Standard Sieve Nos. 70-100***
Geotextile Permittivity	***ASTM D 4491***	***0.7 sec^{-1} minimum.***
Puncture Strength (Unaged Geotextile)	***ASTM D 4833***	***235 lbs minimum.***
Bursting Strength (Unaged Geotextile)	***ASTM D 3786***	***750 psi minimum.***
Trapezoidal Tearing Strength (Unaged Geotextile)	***ASTM D 4533***	***140 pounds minimum in any principal direction.***
Grab Tensile Strength (Unaged Geotextile)	***ASTM D 4632***	***380 lbs. min. in any principal direction.***
Breaking Elongation (Unaged Geotextile)	***ASTM D 4632***	***50% minimum in any principal direction.***
Ultraviolet Degradation (Unaged Geotextile)	***ASTM D 4355***	***50% strength retained at 500 hours.***
Seam Strength (Unaged Geotextile)	***ASTM D 4632***	***300 lb***

Unaged geotextile is defined as geotextile in the condition received from the manufacturer or distributor. AOS is defined as the number of the U.S. Standard Sieve having openings closest in size to the geotextile openings. All numerical values represent minimum average roll values, i.e., any roll in a lot shall meet or exceed the minimum in the table.

2.2 GEOTEXTILE FOR DUNE CROSSOVERS

Geotextile shall be a woven or nonwoven pervious sheet of polymeric material and shall consist of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed. Stabilizers and/or inhibitors shall be added to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the geotextile. Post-consumer recycled material may also be used. Geotextile shall be formed into a network such that the filaments or yarns retain

dimensional stability relative to each other, including the edges. Geotextiles shall meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	LBS	200	ASTM D 4632
SEAM STRENGTH	LBS	180	ASTM D 4632
BURSTING STRENGTH	PSI	450	ASTM D 3786
PUNCTURE	LBS	80	ASTM D 4833
TRAPEZOID TEAR	LBS	40	ASTM D 4533
APPARENT OPENING SIZE	U.S. SIEVE	70-100	ASTM D 4751
PERMITTIVITY	SEC -1	0.7	ASTM D 4491
ULTRAVIOLET DEGRADATION	PERCENT	50 AT 500 HRS	ASTM D 4355

PART 3 EXECUTION

3.1 GENERAL INFORMATION ***FOR PLACEMENT UNDER BEDDING***

Most of the geotextile shall be placed underwater with typical water depths ranging from approximately 0 to 11 feet. Due to tidal fluctuations, placing and securing the geotextile shall be difficult.

3.2 SURFACE PREPARATION

3.2.1 Geotextile Under Bedding Stone

The geotextile, to be placed under the bedding stone, shall be placed on prepared surfaces, as specified in Section 02225 JETTY RECONSTRUCTION, in the manner and at the locations shown on the drawings.

3.2.2 Geotextile For Dune Crossovers

The surfaces on which the geotextile will be placed for the dune crossover shall be prepared to a relatively smooth condition and shall be free of obstructions, depressions, debris, erosion feature, or vegetation. Any irregularities shall be removed so as to insure continuous, intimate, contact of the geotextile with all the surface. Any loose material, soft

or low density pockets of material, shall be removed; erosion features such as rills, gullies, etc. must be graded out of the surface before geotextile placement. The prepared surfaces will require inspection and approval by the Contracting Officer prior to the placement of the geotextile.

3.3 INSTALLATION OF GEOTEXTILE

At the time of installation, the geotextile will be rejected if it has defects, rips, holes, flaws, deterioration or damage incurred during manufacture, transportation or storage. The surface to receive geotextile shall be prepared to a relatively smooth condition free of obstructions, depressions, debris, and soft or low density pockets of material. The geotextile***, to be placed under the bedding stone,*** shall be placed with the long dimension perpendicular to the construction baseline and shall be laid smooth and free of tension, stress, folds, wrinkles or creases. ***The geotextile, to be placed for the dune crossover, shall be placed with the long dimension perpendicular to the centerline of the dune crossover and shall be laid smooth and free of tension, stress, folds, wrinkles or creases.*** Adjacent edges and ends may be joined with a seam or may be overlapped. Seamed geotextile shall be joined with a folded seam using a single lock-type stitch seam or a double chain type stitch seam. Seams shall be perpendicular to the centerline of the baseline ***or the crossover.*** Sewing may be done on-site or by the manufacturer. Overlapped geotextile shall be joined so the strips are placed to provide a minimum width of 24 inches of overlap for each joint.

3.3.1 Special Placement Procedures ***For Jetty Reconstruction***

The geotextile shall be placed to extend at least three feet beyond the toe of the stone jetty, as shown on the drawings.

3.3.2 Protection of Geotextile

The geotextile shall be protected at all times during construction. Any damage to the geotextile during its installation or during placement of stone shall be repaired or replaced by the Contractor at no additional cost to the Government. The work shall be scheduled so that the covering of the geotextile, less the overlap distance, with the full thickness of bedding stone ***or base material***, is accomplished on the same day that the geotextile is placed. Failure to comply shall require replacement of the geotextile. The geotextile shall be protected from damage due to the placement of the stone. This shall be accomplished by limiting the height of drop of materials to no greater than 1-foot. In no case shall any type of equipment be allowed on the unprotected geotextile.

3.4 REPAIR OF DAMAGED GEOTEXTILE

The following procedure shall be performed by the Contractor when repairing damaged sections of the geotextile during or following its installation:

a. The damaged section of the geotextile shall be cut in a rectangular or square section and removed.

b. An undamaged piece of geotextile of the same type shall be placed under the original fabric so that its edges over-lap the cut area a minimum of 3 feet in all directions.

Geotextile which cannot be repaired shall be replaced.

3.5 CONTRACTOR QUALITY CONTROL

The Contractor shall include in the daily quality control reports, required by Section 01450 CONTRACTOR QUALITY CONTROL, the date(s) when it was covered with stone.

3.6 MEASUREMENT AND PAYMENT

No separate measurement or payment will be made for the work specified in this section ***for placement of geotextile. All costs in connection with providing and installing geotextile shall be included in the prices of the items of work to which the geotextile is incidental.***

-- End of Section --

1

SECTION 02225

JETTY RECONSTRUCTION

PART 1 GENERAL

1.1 SCOPE OF SECTION

The work specified in this section includes furnishing all labor, materials, and equipment, and performing all operations required for excavation and reconstruction of the jetty as specified herein and shown on the drawings, including handling, transportation, stockpiling and placing of materials.

1.2 REFERENCE

The following publication forms a part of these specifications to the extent referenced. The publication is referred to in the text by its basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 127	(1988) Test Method for Specific Gravity and Adsorption of Coarse Aggregate
ASTM C 131	(1989)Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion in the Los Angeles Machine
ASTM C 295	(1990) Standard Guide for Petrographic Examination of Aggregate for Concrete
ASTM D 2487	(1993)Classification of Soils for Engineering Purposes (Unified Soil Classification System)
CRD-C-144	(1992) Standard Test Method for Resistance of Rock to Freezing and Thawing

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Certificates

Stone Source and Records; G,DO.

The proposed source of the stone to be used for the work shall be submitted for approval by the Contracting Officer no less than 14 days in advance of delivery of material to the work site.

The Government will visit the selected quarry to inspect stone quality at least 7 days before any stone delivery to the work site. The Contractor shall have a truck load of each stone type dumped at the quarry. The stone shall be properly graded for inspection by the Government.

Gradation Curve; G,DO.

The Contractor shall submit gradation curves for the specified range of materials superimposed with the proposed stone gradation. Gradation curves shall be submitted for approval 14 days prior to the delivery of any stone. Gradation curves shall be included for each stone type according to stone classification specified herein for Contractor information and use.

Plant Slips; G,COR.

The Contractor shall submit a plant slip to the Contracting Officer indicating the delivery time, plant name and address, the weight of material delivered, the gradation, and the slip shall be signed by the inspector or other designated person at the plant for each load of stone delivered to the work site at the time of delivery.

The contractor's inspector or any other designated person shall physically inspect the delivered stone, separate unsuitable stone and accept the responsibility to replace any quantity of stone rejected by the Government's Inspection Team. If any quantity of unsuitable stone is placed, the contractor is responsible for removing it and the Contracting Officer shall withhold appropriate (partial) payment.

Qualifications; G,COR.

Provide qualifications of the Delaware licensed surveyor for land and hydrographic surveying.

Work Plan; G,DO.

The Contractor shall submit to the Contracting Officer for approval at least 14 days prior to the commencement of work specified in this section his plan for excavation, handling, transportation and placing of all materials.

1.4 SITE CONDITIONS

The work area is subject to erosion due to tidal action. The Contractor shall field verify existing conditions at the work site as erosion may have occurred since the date of the surveys used for preparation of the contract drawings.

PART 2 PRODUCTS

2.1 JETTY STONE

2.1.1 Quality

Jetty stone shall be sound, durable and of suitable quality to ensure

performance in the work and in the climate in which it is to be used. Stone shall be free from cracks, seams, and other defects that would tend to increase its deterioration from the elements. The stone shall be blocky and angular quarried material, with the least dimension not less than one-third the greatest dimension. Flat slabs, boulders, and parts of boulders will not be acceptable. The inclusion of objectionable quantities of dirt, sand, clay, and rock fines will not be permitted. The density shall be based on saturated surface dry specific gravity of the stone determined in accordance with ASTM C 127.

2.1.2 Testing

The following tests will be used by the Government to determine the acceptability of the stone sources selected by the Contractor.

PROPERTY	TEST METHOD	ACCEPTABLE TEST RESULTS
Petrographic	ASTM C 295	Fresh, interlocking, crystalline, with few vugs, no clay minerals and no soluble minerals.
Specific Gravity and Absorption	ASTM C 127	Minimum Unit Weight (dry) of 165 pounds per cubic foot. Absorption less than 1%.
Abrasion Resistance	ASTM C 131	Less than 20% loss for 500 revolutions.
Freezing/ Thawing	CRD-C-144	Less than 10% loss for 12 cycles.

Additional testing shall be required if results from the tests, specified above, are close to the limits of acceptability. In the event test reports are not available, as in the case of newly operated sources, the Contractor shall perform such tests as are necessary to determine the acceptability of the stone for use in the work. Approval of a source of stone is not to be construed as approval of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for use as determined by the Contracting Officer. Individual stones or loads or parts of loads may be rejected if material does not meet the specifications.

2.1.3 Jetty Stone Gradation

The Jetty stone shall be reasonably well graded within the following limits:

Percent Lighter By Weight	Limit of Stone Weight in Pounds
100	7230 - 5000
50	2400 - 1600
15	500 - 225

The gradation curve for the jetty stone is attached to this section.

2.2 BEDDING STONE

Bedding stone shall consist of crushed stone. The material shall be composed of tough, durable particles, shall be reasonably free from thin, flat and elongated pieces, and shall contain no organic matter or soft, friable particles in quantities considered objectionable by the Contracting Officer. The gradation shall be within the following limits:

Percent Passing	Sieve Size
100	12"
85-15	5"
15-0	1"

The gradation curve for the bedding stone is attached to this section.

2.3 GEOTEXTILE

The geotextile shall be as specified in Section 02215 GEOTEXTILE.

2.4 CONCRETE INFILL

Portland cement shall conform to ASTM C 150, Type II. Concrete for concrete infill shall conform to ASTM C 94/C94M with a compressive strength of 3000 psi, minimum at 28 days, and a slump of 1 - 3 inches.

PART 3 EXECUTION

3.1 RECONSTRUCTION OF JETTY

3.1.1 Excavation of Sand, Clay and Existing Jetty Stone

The Contractor shall perform all excavation, regardless of the material encountered, required to prepare the subgrade for the geotextile, bedding material and stone; and to attain the final slope configuration as shown on the contract drawings. Excavated satisfactory materials shall be used to backfill excavated areas, to the required grade, in the locations shown on the drawings. ***In areas where an underlying clay layer exists, as indicated on the contract drawings, the existing stone jetty and underlying clay layer shall be excavated. For bid purposes, the Contractor shall assume that excavation is required to elevation -6.0. The existing clay soil is not satisfactory material for backfill and shall be removed and disposed of at the Contractor's expense. The existing jetty stone, that is to be removed, is not satisfactory for backfill and shall be disposed of offsite at the Contractor's expense.***

3.1.2 Removal of Existing Revetment Stone

Existing revetment stone will have to be removed in order to place new stone. The existing revetment stone is to be relocated to the other side of the inlet at the disposal area shown on the contract drawings.

3.1.3 Removal of Existing Sheetpile

The Contractor shall remove the existing sheetpile to the extent indicated

on the contract drawings.

3.1.4 Satisfactory Materials

Satisfactory materials shall be as classified in ASTM D 2487 as GW, GP, GM, GC, SW, SP, SM, and SC, and shall be free from roots and other organic matter, trash, debris, roots or other organic material, frozen materials, or stones larger than 6 inches in any dimension.

3.1.5 Preparation of Surface

The existing stone jetty surface, ***except where an underlying clay layer exists***, is to be leveled off prior to geotextile placement as shown on contract drawings. ***In areas where an underlying clay layer exists, the surface underlying the geotextile shall be graded smooth and free of ruts or protrusions which could damage the geotextile. Any irregularities shall be removed so as to insure continuous, intimate, contact of the geotextile with all the surface.***

3.1.6 Geotextile

Geotextile material shall be installed as specified in Section 02215 GEOTEXTILE.

3.1.7 Placement of Stone

3.1.7.1 Bedding Stone

The bedding stone shall be carefully placed on the geotextile within the limits shown on the drawings or as otherwise directed by the Contracting Officer. The stone shall be placed in such a manner as to produce a reasonably well-graded mass of stones with the minimum practicable percentage of voids. The stone shall be placed so that the finished surface is within a tolerance of plus or minus 3 inches from the grade shown on the drawings, except that the extremes of such tolerance shall not be continuous over a distance greater than 200 feet. The stone shall be placed in such a manner as to avoid displacing the geotextile material. The stone shall not be dropped onto the geotextile from a height greater than one foot.

3.1.7.2 Jetty Stone

The stone shall be carefully placed on the bedding stone within the limits shown on the drawings or as otherwise directed by the Contracting Officer. The stone shall be placed in such a manner as to produce a reasonably well-graded mass of stones with the minimum practicable percentage of voids. The stone shall be placed so that the finished surface is within a tolerance of 0 to plus 6 inches from the slope lines and grades shown on the drawings, except that the extreme of such tolerance shall not be continuous over a distance greater than 200 feet.

The stone shall be placed in such a manner as to avoid displacing the geotextile material or the bedding stone. Stones should be placed by feeling with the handling equipment to achieve contact when vision is obscured, i.e. below water, and then released.The stone shall not be dropped from a height greater than one foot. The larger stones shall be well distributed and the entire mass of stones in their final position shall be roughly graded to conform to the gradation requirements specified

herein. The finished surface shall be free from objectionable pockets of small stones and clusters of larger stones.

Placing the stone by dumping into chutes or by similar methods likely to cause segregation of the various sizes will not be permitted. The desired distribution of the various sizes of stone throughout the mass shall be obtained by selective loading of the material at the quarry or other source, by controlled placement of successive loads during final placing, or by other methods of placement which will produce the specified results. Rearranging of individual stones by mechanical equipment or by hand shall be performed to the extent necessary to obtain a well-graded distribution of stone as specified above and a reasonably even finished surface.

The Contractor shall maintain the jetty until accepted by the Government and any material displaced by any cause shall be replaced at no additional cost to the Government, to the lines and grades shown on the drawings.

3.2 CONCRETE INFILL

The Contractor shall place concrete infill in the locations, to the thickness, and in the manner indicated on the contract drawings.

3.3 SURVEY REQUIREMENTS

The Contractor shall be responsible for conducting all surveys as required by Section 01720 and Special Clause: QUANTITY SURVEYS to demonstrate that the construction is in compliance with the specified tolerances and the lines, grades, and elevations shown on the drawings.

3.4 Test Section

The Contractor shall initially construct a 100 linear foot test section of jetty reconstruction. This test section shall be approved by the Contracting Officer prior to any additional contract work. The Contractor shall demonstrate the methods that will be utilized to complete the Jetty Reconstruction, to include: excavation, placing geotextile, placing stone, and backfilling. The Contractor shall complete a test section consisting of the first 100 linear feet of jetty reconstruction and shall submit all required surveys.

3.5 MEASUREMENT AND PAYMENT

3.5.1 Mobilization and Demobilization ***for Jetty Reconstruction***

All costs connected with the mobilization and demobilization of the Contractor's plant and equipment, ***for the jetty reconstruction work,*** will be paid for at the contract lump sum price for this item as listed in the Bidding Schedule. Sixty percent (60%) of the lump sum price will be paid to the Contractor upon completion of his mobilization at the work site. The remaining forty percent (40%) will be included in the final payment for work under this contract.

3.5.1.1 Cost Data

In the event the Contracting Officer considers that the amount in this item (sixty percent) which represents mobilization, does not bear a reasonable relation to the cost of the work in this contract, the Contracting Officer may require the Contractor to furnish cost data to justify this portion of the bid price. Failure to justify such price to the satisfaction of the

Contracting Officer will result in the payment of actual mobilization costs, as determined by the Contracting Officer, at the completion of mobilization. The payment of the remainder of this item will be included in the final payment under the contract. The determination of the Contracting Officer in these circumstances is not subject to appeal.

3.5.1.2 Costs

All costs in connection with the mobilization and demobilization of the Contractor's plant and equipment as defined below shall be included in the contract lump sum price for ***Bid Item No. 2, "Mobilization and Demobilization of Plant and Equipment Required for Jetty Reconstruction".***

a. Mobilization shall include all costs for operations accomplished prior to commencement of actual jetty reconstruction; that is, transfer of all plant and equipment to the work site, and all other incidentals in advance of jetty reconstruction.

b. Demobilization shall include general preparation for transfer of the plant and equipment to the Contractor's home or standby base, cleanup, and the transfer of plant and equipment to the home or standby base.

3.5.2 Excavation and Backfill

3.5.2.1 Excavation

The work specified in this section for excavation, including excavation of sand, clay, existing jetty stone, and removal of grout bags, will be measured for payment by the total cubic yards of soil/bags/stone excavated. Payment will be made at the contract unit price for Bid Item No. 4, "Excavation/Backfill." The total cubic yardage will be computed by the average end-area method from cross sections taken by a licensed Surveyor, before and after the excavation (including sand, clay, removal of grout bags, and removal of existing jetty stone), as specified in Section 01720 SURVEY REQUIREMENTS. The yardage paid for excavation will be the number of cubic yards of material, measured from existing grade (determined from "before excavation" surveys) to required subgrade (determined from "after excavation" surveys). The lateral limit of excavation shall be the vertical excavation pay limits as shown on the typical sections on the drawings. The measurement will not include the yardage of any excavation performed prior to the taking of elevations and measurements of the existing grade. Included in this bid item unit price are all costs in connection with the disposal of the clay layer material, the existing jetty stone, and the grout bags offsite, and, the removal of the existing sheetpile.

3.5.2.2 Backfill

The work specified in this section for backfilling with sand, will be measured for payment by the cubic yard of sand backfilled. Payment will be made at the contract unit price for Bid Item No. 4, "Excavation /Backfill." The cubic yardage will be computed by the average end-area method from cross sections taken by a licensed Surveyor, after the excavation and after backfilling, as specified in Section 01720 SURVEY REQUIREMENTS. The yardage paid for backfilling will be the number of cubic yards of material, measured from existing grade (determined from "after excavation" surveys) to required final grade (determined from "after backfill" surveys). The

lateral limit of backfill shall be the vertical excavation pay limits as shown on the typical sections on the drawings. The measurement will not include the yardage of any backfill performed prior to the taking of elevations and measurements of the existing grade.

3.5.3 Removal of Existing Revetment Stone

The work specified herein for the removal of existing revetment stone will not be measured for payment. All costs in connection therewith shall be included in the contract lump sum price for Bid Item No. 5 "Removal of Existing Revetment Stone."

3.5.4 Jetty Stone

The work specified in this section for providing jetty stone will be measured for payment by the tons of jetty stone satisfactorily placed and accepted. Payment will be made at the contract unit price for ***Bid Item No. 6, "Jetty Stone."*** Payment for this bid item shall also include full compensation to the Contractor for performing surveys specified in the paragraph: SURVEYS OF JETTY RECONSTRUCTION. Payment for this item shall also include full compensation to the Contractor for material testing associated with jetty stone.

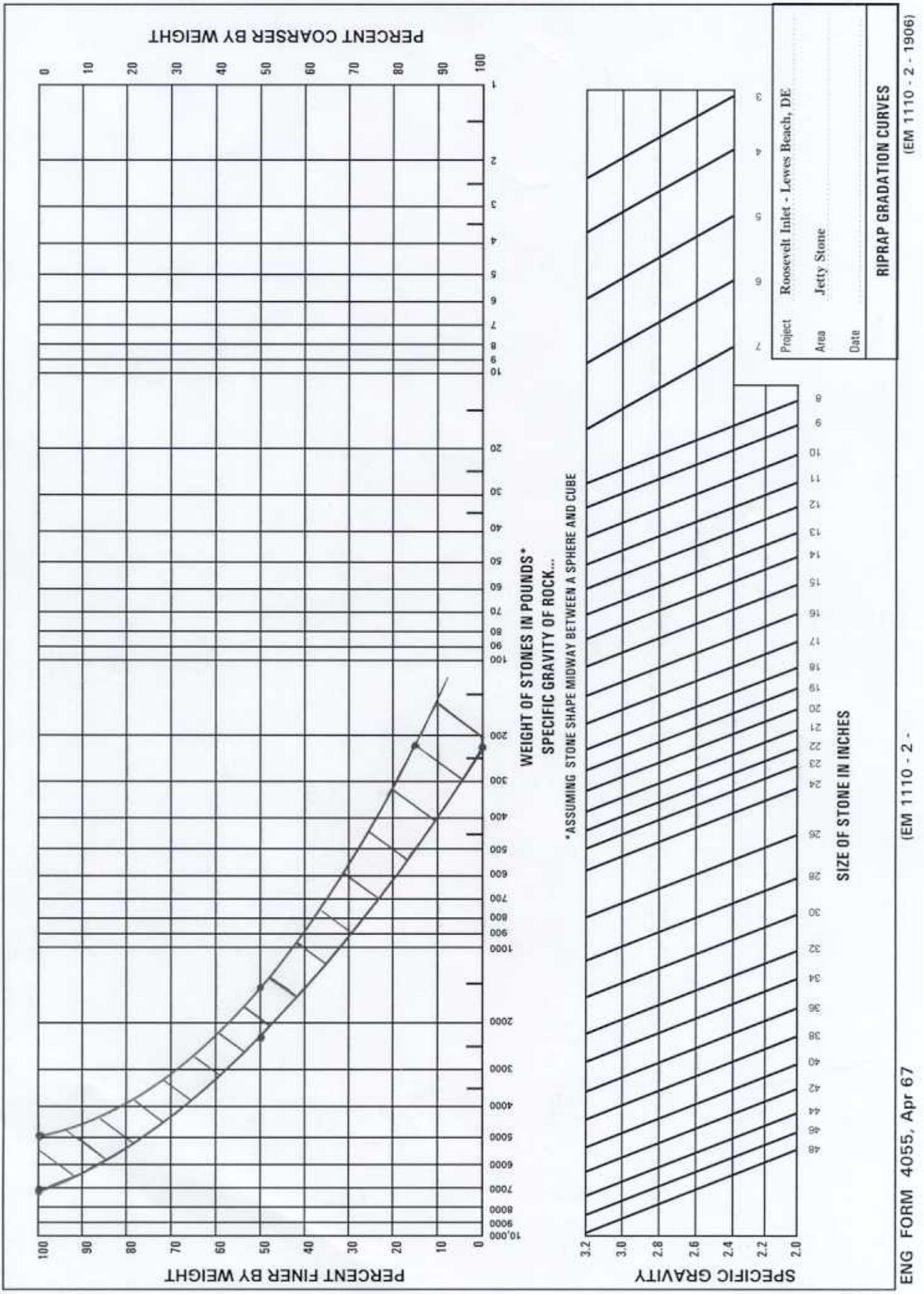
3.5.5 Bedding Stone

The work specified in this section for providing bedding stone will be measured for payment by the tons of bedding stone satisfactorily placed and accepted. Payment will be made at the contract unit price for ***Bid Item No. 7, "Bedding Stone."*** Payment for this bid item shall also include full compensation to the Contractor for performing surveys specified in the paragraph: SURVEYS OF JETTY RECONSTRUCTION. Payment for this item shall also include full compensation to the Contractor ***for placement of geotextile and any material testing associated with the bedding stone.***

3.5.6 Concrete Infill

The work specified in this section for concrete infill will be measured for payment by the cubic yard. Quantity of stone will be measured from certified delivery tickets. Payment will be made at the contract unit price for Bid Item No. 8, "Concrete Infill."

-- End of Section --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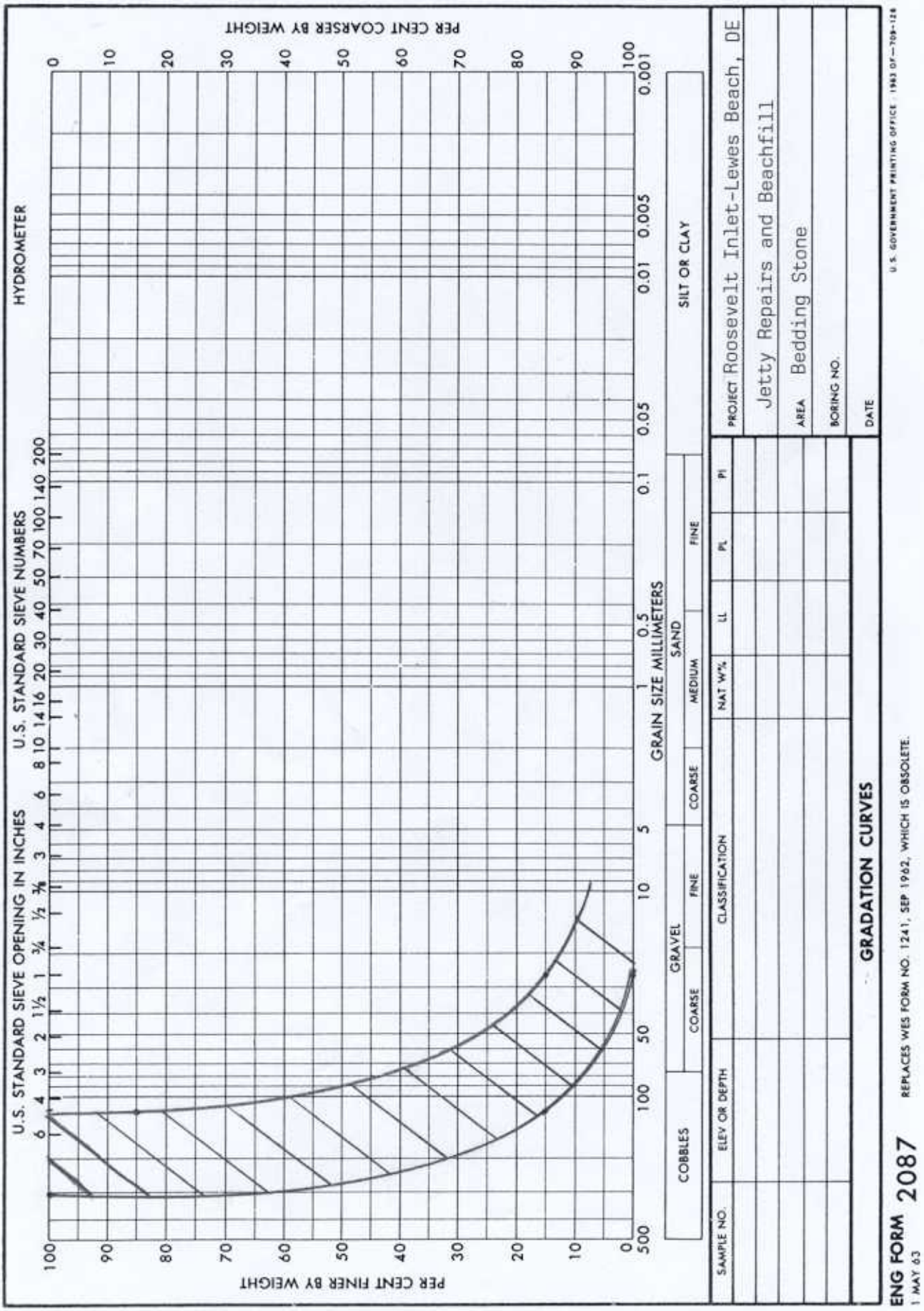
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COBBLES
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Jetty Repairs and Beachfill
AREA Bedding Stone
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U.S. GOVERNMENT PRINTING OFFICE : 1963 O-709-128

SECTION 02451

CROSSOVERS

PART 1 GENERAL

1.1 SCOPE

The work covered by this section consists of furnishing all plant, labor, equipment, and materials, and performing all operations in connection with construction of the vehicular/handicapped and pedestrian crossovers in accordance with this Specification, as shown on the Contract Drawings or as directed by the Contracting Officer.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI B18.22.1	(1981) Plain Washers

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53/A 53M	(2001) Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
ASTM A 153	(1987) Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A 563	(1990) Carbon and Alloy Steel Nuts
ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu. m.))
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1996el) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

DELAWARE DEPARTMENT OF TRANSPORTATION (DelDot)

DelDOT Standard Specifications

(2001 Edition)Standard Specifications for Road and Bridge Construction

NEW JERSEY DEPARTMENT OF TRANSPORTATION (NJDOT)

NJDOT Specifications ***(1989 Edition) Standard Specifications for Road and Bridge Construction***

1.3 SUBMITTALS

00

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01300 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Bollard; G,DO

Detail drawings indicating material thickness, type, grade, and class; dimensions; and construction details. Drawings shall include catalog cuts, erection details, manufacturer's descriptive data and installation instructions, and templates.

Handicap, Vehicle, and Pedestrian Crossovers; G DO.

The Contractor shall submit drawings which graphically show the details of the handicap, vehicle and pedestrian crossovers including materials, connections, and details of fabrication and installation.

SD-03 Data

Pre-Placement Test Data; G,DO.

At least 15 days prior to placement of the base material, the Contractor shall submit to the Contracting Officer the name and location of the source which is proposed for obtaining base material. In addition, the Contractor shall submit such laboratory test data as necessary to demonstrate to the satisfaction of the Contracting Officer that the material is suitable for use as base material and meets the requirements of this Specification. All testing shall be entirely at the Contractor's expense.

Materials for Handicap, Vehicle, and Pedestrian Crossovers and Bollards; G,DO

The Contractor shall submit information describing the quality and performance of the materials proposed for all crossovers and bollards.

SD-06 Reports

Testing Results; G,DO.

Within one week of conclusion of physical tests, including gradation tests, proctor tests and nuclear density tests, three copies of test results,

including calibration curves and results of calibration tests. Reports shall indicate the location of the sample/test, the test data, and a statement of compliance or non-compliance, where applicable.

SD-07 Certificates

Testing Laboratory Qualifications; G,DO.

Qualifications of the Independent Testing Laboratory which will be performing the required testing shall be submitted to the Contracting Officer a minimum of 7 calendar days prior to the start of construction of the crossings.

Concrete; G,DO.

Copies of certified delivery tickets for all concrete used in the construction shall be submitted at times of delivery to the site. Certificate shall attest that the concrete meets the requirements stated in these specifications.

Eyebolt, Nut and Washer; G,DO

Certified copies of mill test report for eyebolt, nut and washer shall be submitted.

Work Plans for Handicap, Vehicle, and Pedestrian Crossovers and Bollards; G,DO.

The Contractor shall submit work plans for the construction and installation of the handicap, vehicle, and pedestrian crossovers and bollards. The work plans shall include the labor, equipment, and methods to be used to fabricate and/or install the crossovers and bollards. Individual work plans shall be prepared for each location for each type of crossover.

1.4 SHIPMENT, HANDLING, AND STORAGE OF THE GEOTEXTILE

1.4.1 Shipment

All geotextile shall be labeled, shipped, stored, and handled in accordance with ASTM D 4873 and as specified herein. Each roll shall be wrapped in an opaque and waterproof layer of plastic during shipment and storage. The plastic wrapping shall be placed around the geotextile roll in the manufacturing facility and shall not be removed until deployment. Each roll shall be labeled with the manufacturers name, geotextile type, lot number, roll number, and roll dimensions (length, width, gross weight). Geotextile or plastic wrapping damaged as a result of delivery, storage, or handling shall be repaired or replaced, as directed at no additional cost to the Government.

1.4.2 Handling

No hooks, tongs, or other sharp instruments shall be used for handling geotextile. Geotextile shall not be dragged along the ground. Any geotextile determined to be damaged as a result of poor handling shall be removed from the site and replaced, at no additional cost to the Government, by additional geotextile meeting the requirements of this specification.

1.4.3 Storage

During all periods of shipment and storage, the geotextile shall be protected from direct sunlight, ultra-violet rays, temperatures in excess 140 degrees F or less if recommended by the manufacturer, mud, dirt, dust and debris. Geotextiles shall be stored in areas where water cannot accumulate, elevated off the ground, and protected from conditions that will affect the properties or performance of the geotextile.

PART 2 PRODUCTS

2.1 BASE MATERIAL

The vehicle dune crossovers shall be constructed utilizing a soil aggregate, designation I-5, conforming to Subsection 901.09 of the NJDOT Specifications. The soil aggregate shall have a gradation designation of I-5 as specified in Subsection 901.21, Table 901-2 of the NJDOT Specifications. Recycled materials are not acceptable.

The Contracting Officer reserves the right to reject any materials, which in his opinion, contains organic material or debris in quantities which he considers objectionable. Material which is frozen at the time of placement will also be rejected.

2.2 EYEBOLT

Shoulder Type Machinery Eyebolt shall be forged steel quenched and tempered and shall have a working load limit of a minimum of 13,000 pounds. Threads shall meet UNC. The size is as indicated on the Contract Drawings.

2.3 NUTS, AND WASHERS

The washers and nuts shall conform to ANSI B18.22.1 and ASTM A 563, respectively. Hot-dip galvanizing shall be in accordance with ASTM A 153.

2.4 BOLLARDS

Bollards shall be heavy duty steel pipe conforming to ASTM A 53/A 53M, Type E or S, weight STD, with galvanized finish.

2.5 CONCRETE

Concrete shall meet the requirements of DELDot Standard Specifications, Section 812, Class B.

2.6 GEOTEXTILE

Geotextile shall be as specified in Section 02215 GEOTEXTILE.

PART 3 EXECUTION

3.1 GENERAL

The dune crossovers shall be constructed in accordance with the details, dimensions, and arrangements shown on the Contract Drawings, as directed by the Contracting Officer, or as specified.

3.2 BASE MATERIAL

3.2.1 Subgrade Preparation

Prior to the placement of the base material, the subgrade shall be shaped to the lines and grades as shown on the Contract Drawings and compacted as specified. These operations shall include disking, plowing, aeration and/or moistening, as required to obtain proper compaction. Unsatisfactory material shall be removed and replaced with satisfactory beachfill material as directed. Compaction of the prepared subgrade shall be accomplished by the controlled use of dozers or other approved equipment to at least 90 percent laboratory maximum dry density as determined by the Modified Proctor test procedure as presented in ASTM D 1557. Any previously placed beachfill material excavated to establish the required line and grades for the base material shall be placed and spread out on the beach as directed by the Contracting Officer.

3.2.2 Placing, Spreading, Moisture Control and Compaction

No fill shall be placed on any part of the foundation until such areas have been inspected and approved by the Contracting Officer. No fill shall be placed upon frozen or frost-covered ground, nor shall snow, ice or frozen material be incorporated in the fill. The base material shall be placed in maximum 12 inch lifts and compacted to at least 90 percent laboratory maximum dry density as determined by the Modified Proctor test procedure as presented in ASTM D 1557. If the material is too wet to facilitate proper compaction, it shall be removed and replaced or dried out by any method approved by the Contracting Officer. Placement of the base material shall be made to the lines and grades shown on the Contract Drawings and compacted by the controlled use of the hauling and spreading equipment. Movement of the equipment shall be distributed as much as practicable over the surface to provide uniform compaction and complete coverage of the fill.

3.2.3 Rejected Material

Rejected material is defined as fill material not suitable as defined in Paragraph BASE MATERIAL of this Section. Any material that, in the opinion of the Contracting Officer, is considered unsuitable shall be promptly removed from the construction site at no expense to the Government.

3.2.4 Testing

3.2.4.1 General

The Contractor shall be wholly responsible for furnishing material meeting the requirements of this Section, for placing the material within the limits of moisture suitable for proper compaction, and for compacting the materials in accordance with the requirements of this Section. The Contractor is also responsible for performing laboratory tests as required to control the work and demonstrate compliance with material specifications. Testing shall be performed by an approved Independent Testing Laboratory retained by the Contractor. Field in-place density shall be determined in accordance with ASTM D 2922. ASTM D 2922 results in a wet unit weight of soil and ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall also be checked along with density calibration checks as described in ASTM D 3017; the calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed by the Contracting Officer. When test results indicate, as determined by the

Contracting Officer, that compaction is not as specified, the material shall be removed, replaced and recompacted to meet specification requirements. Tests on recompacted areas shall be performed to determine conformance with specification requirements. Inspections and test results shall be certified by a professional engineer registered in the State of Delaware. These certifications shall state that the tests and observations were performed by or under the direct supervision of the engineer and that the results are representative of the materials or conditions being certified by the tests. The following number of tests, if performed at the appropriate time, will be the minimum acceptable for each type operation.

a. The Contractor shall perform not less than one gradation test on material placed in each vehicular/handicapped crossover and not less than one test for every fifth pedestrian crossover unless otherwise directed or approved by the Contracting Officer. The Contracting Officer will require additional tests whenever materials are questionable.

b. Proctor tests shall be performed for each type material used as base material to determine the optimum moisture and laboratory maximum density values. A minimum of two proctor tests shall be performed.

c. A minimum of three in-place nuclear density tests shall be performed per lift of base material placed at each crossing.

d. In-place densities shall be checked using ASTM D 1556 a minimum of one time during placement of the base materials. Additional checks shall be performed as requested by the Contracting Officer.

3.2.4.2 Action Required for Non-Compliance

Whenever testing specified in this Section indicates material non-compliance, the Contractor may be required to remove all material not meeting the specification requirements. The Contracting Officer may require as many additional tests as necessary to identify the limits of unsuitable material. No additional payment will be made for test required to determine the limits of unsuitable material nor for the cost of removal and replacement with suitable material.

3.3 BOLLARD

Bollards shall be set vertically in concrete piers. Piers shall be constructed of concrete specified in this section. Install eyebolt and tighten nut until snug. Fill hollow core of the steel pipe with concrete specified in this section. Concrete shall be placed and cured in accordance with DelDOT Standard Specifications Section 602.

3.4 GEOTEXTILE

Installation of geotextile shall be as specified in Section 02215 GEOTEXTILE.

3.5 MEASUREMENT AND PAYMENT

3.5.1 Dune Crossovers

Dune crossovers shall be measured for payment as a unit for each crossover acceptably completed. Payment shall be at the contract unit price per crossover listed in the Bid Schedule for ***Bid Item No. 9, Dune Crossovers***.

Such payment shall provide full compensation for all plant, labor, materials, equipment, ***geotextile***, base material, ***bollard with eye bolt***, laboratory testing, handrails, where applicable, and incidentals necessary to complete the work as shown on the Contract Drawings and specified herein.

-- End of Section --